

Immediate Release

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### Controlling Voles: Field Mice

Voles or field mice populations are increasing due to a mild winter. Vole populations crash every 2-5 years, due to cold weather and a lack of food and shelter. This year, vole populations are rebounding and may cause significant crop damage. Voles are 3-7 inches long with small eyes, ears, and tail. They predominate in no-till and/or cover crop fields but are also common in tilled fields. Vole control depends upon understanding vole biology, scouting, natural predators, and effective cultural practices.

**Biology:** There are over 60 vole species, but meadow and prairie voles are the main crop pests. Meadow voles are loners with many mates, live 2-18 months, and may have multiple litters (4-8 litters, up to 11 pups) and 40-50 young/year. They have a high mortality rate (>80%) due to predation (keystone mammal food source for all carnivores) but their young start breeding in 21 days! Nests are either above ground or below ground in burrows. Prairie voles live up to 24 months, mate for life, have smaller litters (2-4 litters, up to 7 pups each) and 20-30 young/year. Prairie vole mortality rate is lower but their young start breeding at 35-40 days. Vole populations may average 15-45 voles/acre up to 600 with high crop damage.

**Scouting:** Voles do not hibernate so winter snow provides insulation and concealment. They generally forage 15 feet in up to 0.25-acre patches. Burrow holes and runs from nests are 1-2" wide and highly visible during vole scouting. Voles feed every 2-3 hours but are most active 2-3 hours after dawn or before sunset, with most summer activity occurring at night and in winter during the day. Voles eat high protein diets (soybean seeds and new emerging cotyledons) with low fiber but also consume high carbohydrate seeds (corn, wheat, oats). Cover crops they least like are canola, barley, radish, turnip, Sorghum Sudan, and cereal rye while high protein diets like red clover, alfalfa, hairy vetch, peas, and soybeans are favorite food sources.

**Scout for voles 30-45 days before planting.** At more than 4-5 vole colonies in close proximity, expect significant crop damage in circular or oval areas. Voles will significantly reduce corn or soybean stands during the first **21 to 28** days after planting. Voles dig up and eat newly planted seeds, soybean cotyledons and plants until they reach **6-10" tall**. When planting cover crops, rotate mixes and do not broadcast cover crop seed, drilling is preferred. Select a cover crop mix that contains **50%** species that winter kill and are low growing. Mowing cover crops down to 8-

12 inches will reduce shelter, allow higher predation, and reduce seed head formation as a food source.

**Natural predators:** Include fox (prey local), coyotes (wide ranging), owls, hawks, snakes, and kestrels (American falcon). The American Shrew (looks like a mouse with long snout and teeth) is a major vole predator. Ten-foot high perches (fence post) with a 12” bar (painted a bright color) allow many birds (owls, hawks, kestrels) to prey on voles. Kestrels (3.6 voles/family) and fox (2.9 voles/family, 10-15 voles/day) consume the most voles/acre. Kestrel stay and eat voles year-round, so bird houses are helpful. Dogs, especially rat terriers (any type of terrier) are bred to kill mice and rats. A Michigan farmer has three rat terriers that kill 250 voles in two hours! Two warnings: Terriers are big diggers (many infield holes) and do not let the dog lick your kids or spouse!

**Cultural Practices:** Eliminating food and shelter early or giving them something else to eat are two strategies, so kill a cover crop early (30 days before planting) or plant green into a cover crop. Planting corn (>2 inches) and beans (1.75-2.0 inch) deep reduces vole seed damage and allows the crop to outgrow vole feeding. Voles migrate 1-2 miles, so mowing or reducing shelter from vegetation in fence rows, road ditches, streams and ditches, along woods, rock piles, etc. may reduce vole numbers. Spreading chaff at harvest and using a rotary hole to fluff and spread residue (and spear a few voles) have been effective. Crimping cover crops and drilling (more disc blades) eliminate many voles. Seed repellants include capsaicin (the hot in hot peppers), cayenne pepper, and Lorsban or Thriam (both stinky insecticides) may reduce vole feeding. Baits (Zinc phosphide pellets in furrow) are expensive and effectiveness varies. Tillage may help, but no practice is more than 60% effective alone, so use a combination of practices to control voles.